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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,901	08/07/2003	Ki-jae Do	1349.1191	7796
21171	7590	09/29/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			BRASE, SANDRA L	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/635,901

Applicant(s)

DO, KI-JAE

Examiner

Sandra L. Brase

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 and 12 is/are allowed.
- 6) ☒ Claim(s) 1,5,11,13 and 16 is/are rejected.
- 7) ☒ Claim(s) 2,4,6,7,14,15,17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/12/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 6 and 17 are objected to because of the following informalities.

On line 1 of claim 6, “1” should be changed to “4” since there is no antecedent basis for “the obtained developing voltage” in claim 1, but there is in claim 4.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Simazaki et al. (US 5,315,353).
4. Simazaki et al. (...353) disclose an image forming apparatus having a developing gap detecting function comprising: a photosensitive medium (1) forming an electrostatic latent image; a developer conveyer (2a) depositing a developer to the electrostatic latent image formed on the photosensitive medium to form a visual image while rotating the photosensitive medium opposite thereto (col. 7, line 51 – col. 8, line 23); a power supply supplying a DC voltage to the developer conveyer (col. 11, lines 37-42); a current detecting unit detecting a value of a DC

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current flowing on the developer conveyer when the voltage of the power supply is outputted (col. 9, line 30 – col. 10, line 18); and a controller obtaining a developing gap formed between the photosensitive medium and the developer conveyer based on the DC current value detected by the current detecting unit (col. 11, line 37 – col. 12, line 34).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simazaki et al. (US 5,315,353) in view of Miyamoto et al. (US 5,521,683).

7. Simazaki et al. (...353) disclose the features mentioned previously, but do not disclose applying to the developer conveyer an AC voltage overlapped with the DC voltage, the claimed voltage detecting circuit and the claimed voltage control. Miyamoto et al. (...683) disclose applying a DC voltage overlapped with an AC voltage to a developer conveyer (col. 6, lines 17-22), a voltage detecting circuit (105) detecting the AC voltage from the DC overlapped with the AC voltage; and a constant voltage control circuit (106) which feeds-back a value of the detected AC voltage to the power supply to maintain the value of the detected AC voltage as a target voltage value for developing, where a controller controls the constant voltage control circuit to

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output the developing voltage adapted to the developer conveyer (col. 7, line 58 – col. 8, line 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply a DC voltage overlapped with an AC voltage to the developer conveyer, as disclosed by Miyamoto et al. (...683) since such improves development efficiency, and forms a high-density, clear, fog-free development image, and to have the claimed voltage detecting circuit and the claimed voltage control, as disclosed by Miyamoto et al. (...683) so that a change in strength of the vibration electric field can be prevented.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Narazaki et al. (US 5,400,120) in view of Kodama et al. (US 5,983,044).

9. Narazaki et al. (...120) disclose a method of controlling a developer bias voltage and adjusting a charged voltage to charge the photosensitive medium, strength of light and a scanning time of an exposure member forming the electrostatic latent image on the photosensitive medium using the light (abstract; col. 5, line 52 – col. 6, line 30; col. 7, lines 52-65; col. 8, lines 16-32; and col. 12, lines 32-54). However, Narazaki et al. (...120) do not disclose the manner of controlling the bias voltage. Kodama et al. (...044) disclose controlling a developer bias voltage (col. 6, lines 20-21) by controlling a peak-to-peak voltage or a frequency of an AC power source supplying a voltage to the developing device to control image forming conditions of the developing device (col. 7, line 46 – col. 8, line 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to control the developer bias voltage in the claimed manner, as disclosed by Kodama et al. (...044), since such a manner of control is well known to adjust development conditions.

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***Allowable Subject Matter***

10. Claims 2, 4, 6, 7, 14, 15, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 8-10 and 12 are allowed.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra L. Brase whose telephone number is (571) 272-2131. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur T. Grimley, can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sandra L. Brase  
Primary Examiner  
Art Unit 2852

September 27, 2004